Statement of
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Before the
Congress of the United States
House of Representatives
Subcommittee on Energy Policy, Natural Resources, and Regulatory Affairs

July 22, 2002

Mr. Chairman, Members of the Committee:

Thank you for inviting me to join you in an inquiry that is most important to electric consumers in California and throughout the western United States.

I would like to emphasize four points today, and then I would be happy to respond to your questions.

Market Manipulation and Market Power

First, you have invited me to discuss, among other issues, the trading schemes described in materials produced by Enron and Perot Systems in the past few months, and I will do so in a moment. I must stress, though, that as disturbing as some of the strategies described in the Enron and Perot Systems materials are, the greatest potential harm to electricity consumers in California and elsewhere comes not from "games" that some clever traders may play, but from the persistent exercise of market power by suppliers and traders. By "market power," I mean the ability of a single seller or group of sellers to command excessive prices on a sustained basis. It is the exercise of market power by suppliers that has cost California consumers billions of dollars since the summer of 2000.

From start-up four years ago, the ISO has placed particular emphasis on documenting and mitigating both suppliers' exercise of market power and their use of gaming strategies, such as those described in the Enron/Perot Systems materials. I am providing the Committee with a chronology of activities the ISO has pursued in the past four years, directed to market power, gaming, and providing relief to consumers that have been victimized by market power. You will see there a strong and consistent emphasis on detecting, constraining and combating market power. Through the turmoil of late 2000 and early 2001, both our Department of Market Analysis and the independent Market Surveillance Committee repeatedly documented both the presence of market power in the California electricity markets and its impact on consumers. And we have proposed measures to control that power. There have been times, indeed, when we have been accused of reacting too vigorously to the potential for market power to be exercised or market rules flouted as, for example, when we unilaterally imposed price caps on the

ISO's markets and only afterward sought the authority to do so. I stress these points because market power has been the means by which the greatest profits have been extracted from the California markets, and because it has been the enabler for many of the gaming strategies identified in these markets.

The ISO's Responses to Market Manipulation

Second, with regard to gaming of the type described in the Enron/Perot Systems materials, the ISO consistently has monitored for such activity, and when appropriate, we have taken action. I am providing the Committee with a description of the actions the ISO has taken in response to each of the gaming strategies described in the Enron memos, all of which were identified by the ISO's market monitors. Those actions include the following:

- The ISO detected and issued directives specifically prohibiting some of the gaming strategies identified in the Enron memos;
- The ISO modified its market rules to withhold payments to suppliers who engaged in gaming strategies;
- The ISO persuaded FERC to impose regional price caps to address strategies involving the "laundering" of power to avoid limitations on bids in the ISO's markets, and has recently asked FERC to extend those regional protection measures;
- The ISO levied penalties (following FERC approval) on suppliers who have withheld energy even when we instructed them to provide it to avert blackouts;
- The ISO referred other matters involving questionable activities by suppliers to FERC for review and further action; and
- The ISO issued directives to participants in its markets identifying trading practices, including those cited in the Enron memos, that the ISO considered contrary to its market rules and would subject a trader employing them to sanctions.

The ISO's interaction with Perot Systems, which has recently been the subject of press reports, represents an example of the ISO's efforts in the past to protect its markets against manipulation. When the ISO was established in 1997, its first task was to oversee the development of the computer systems and software needed to run the electricity grid and the energy markets. In March of 1997, the ISO contracted with ISO Alliance, LLC, a joint venture of Perot Systems and ABB Power T&D Company for the development of the computerized system that would run the ISO's markets. (I should note that in July 1998, a few months after the ISO's markets commenced operations, Perot Systems withdrew from the ISO Alliance.) The role assigned to Perot Systems largely related to the integration and testing of systems for which the detailed design work had been performed by its Alliance partner, ABB, and its subcontractors.

In October, 1997, the ISO became aware that Perot Systems was offering to provide consulting service to companies that expected to participate in the ISO's markets, offering to help them identify market opportunities and develop market strategies. My predecessor as the ISO's Chief Executive Officer vigorously protested Perot Systems' solicitations, which the ISO viewed as a potential breach of the obligations of ISO Alliance to hold confidential the details of the systems it was integrating and testing for the ISO and to avoid actual and apparent conflicts of interest with its work for the ISO. The ISO demanded that Perot Systems provide assurances that any services it would provide to market participants would employ only publicly available information, that it make that limitation clear to its potential customers (both those previously solicited as well as those to be solicited in the future), and that it enforce that limitation by taking steps to "wall off" its employees who worked on the systems provided by ISO Alliance. The ISO reviewed the materials that Perot Systems purportedly used to solicit potential business from market participants and satisfied itself that in fact only publicly available information was presented in those materials. Those ISO-reviewed materials focused on the market rules and did not appear to disclose proprietary information on how the ISO's computer systems would operate.

Based on the ISO's review of the materials made available to it and on the representations made by Perot Systems, including its commitment to comply with the demands made by the ISO, the ISO elected not to pursue any further action at that time. We are continuing to review the information that is now coming to light to determine whether that decision should be reconsidered and, in particular, whether Perot Systems lived up to the assurances that it had offered when the ISO challenged its conduct.

In the meantime, the ISO has also commenced a review of its current market oversight and investigation authority to identify additional authority that it may require to detect and deter market manipulation. Additionally, the ISO has proposed a comprehensive revision to the market rules that were the subject of Perot Systems' presentations to prospective clients, and this leads me to my third point

Comprehensive Market Redesign

The most effective means of deterring the exercise of market power and unfair gaming of market rules is to establish market rules that encourage appropriate behavior – by which I mean offering all available electricity supplies at prices that reflect the suppliers' costs – coupled with enforcement programs that rest on clearly defined rules and consequences for non-compliance.

On May 1, 2002, we filed with the FERC a detailed proposal for a comprehensive market redesign that adapts the best features of the market design employed in the Mid-Atlantic region to the unique circumstances we face in California. We followed up with a second filing providing additional details on the rules that would govern the redesigned electricity market. The ISO's proposed design centers around a day ahead integrated market for procurement of electric energy and reserves and the management of congestion on the grid; and a day ahead residual unit commitment, which will permit the ISO to require suppliers to make preparations to generate to meet tomorrow's demand to avoid the situation in which the ISO must scramble at the last minute to secure the power needed to "keep the lights on." It also includes an obligation on utilities and others serving customers to arrange for a surplus of supply in advance to meet their customers demands, so that the short-term market never again becomes the primary vehicle for serving customers' needs.

Our proposal also includes an integrated set of market monitoring and mitigation proposals to deter both the exercise of market power and the types of gaming strategies exemplified in the Enron memos. Last Wednesday, FERC issued an order largely accepting the ISO's market redesign proposal. We are currently evaluating the order but greatly appreciate the prompt response from the FERC enabling us to go forward quickly to implement the new market design.

What Can Congress Do?

Fourth and finally, let me anticipate the questions that you rightfully should expect me to answer and also to suggest a number of steps that Congress might take to help the ISO and other operators of regional electricity markets to deal effectively with market manipulation and the exercise of market power:

- Would the market design changes we propose address and close the opportunities for market manipulation described in the Enron memos? We think so, for the most part.

- Can I assure you that if we succeed with our redesign, all opportunities for market power abuse and market manipulation will be eliminated? Of course not. Many of the problems that contributed to the market failure in 2000-2001 -- deficiencies in supply, failure to engage in long-term contracting for resources, limitations on demand responsiveness, and inadequate transmission infrastructure – can only be addressed through close cooperation not only between the ISO and FERC but also among state officials and market participants, in California and in our neighboring states. Moreover, I cannot tell you how often in the past we acted with the conviction that we closed a door to abuse only to find market participants creating new opportunities. What I can tell you is that our design will draw from the teachings across the country and do all that we now know to be feasible to assure a fair, efficient and competitive market.

There are three areas in which Congress can help the ISO and other operators of regional electricity markets to detect and deter market manipulation and the exercise of market power.

- Currently, the ability of an ISO or regional transmission organization to compel market participants to comply with its market rules is quite limited. The federal courts have held that an ISO or RTO cannot obtain injunctions against violation of its market rules, even if the violations involve the withholding of electricity urgently needed to avert blackouts. The FERC does not have a procedure in place under which and ISO or RTO can obtain enforceable orders mandating compliance with regional market rules on a timely basis. To ensure that ISOs and RTOs can obtain swift relief against market participants that flout the applicable rules, Congress should give FERC the authority to issue orders analogous to temporary restraining orders to mandate compliance with the market rules of an ISO or RTO and should direct FERC to act promptly on any application of an ISO or RTO for such an order.

- Congress should also close a gaping hole in the Federal Power Act's consumer protection scheme. The FERC has ruled that it cannot, even in the context of a market-based rate tariff, order recovery of excessive charges back to the date that the charges first were assessed. Rather, in FERC's view, it may only order recovery of excessive charges back to a date following the filing of a complaint – indeed, sixty days after the filing of such complaint – by an aggrieved party. We believe that the FERC is taking an unduly narrow view of its statutory authority, but Congress should remove all doubt by explicitly giving FERC the power to order refunds of all amounts charged under market-based wholesale rates that are later determined to exceed just and reasonable levels, unless the seller had submitted for FERC's prior review the specific prices it proposed to charge in particular transactions.

- Congress should also confirm that when the FERC determines the need for a cap or other limitation on prices in market-based wholesale transactions in order to ensure that prices do not exceed just and reasonable levels, FERC cannot arbitrarily remove the limitation absent a finding that the market will yield just and reasonable wholesale prices.

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Mr. Chairman, Members of the Committee, let me close with a pledge to each of you and to electric consumers in California and throughout the West: We at the ISO will learn from experience. We will utilize all means available to us and make every contribution we can toward assuring that consumers never again suffer a repetition of past market power abuses, but instead, reap the benefits of a robust competitive market which I continue to believe can be substantial.

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
3/31/1997	FERC: ISO Files Market Power Monitoring Plan	ISO makes initial Tariff filing. Defines "gaming" and proposes penalties and sanctions, including suspension of trading authority.	FERC accepts ISO gaming definition but rejects the ISO's proposed penalties and sanctions , directing the ISO to pursue penalties for specific incidents of alleged misconduct on a case by case basis as events occur. 81 FERC ¶ 61,122 at 61,552-54.
3/3/1998	FERC: EC96-19-017	ISO files for approval of Amendment 4. Seeks $250 cap on default usage charge to counter potential intra-zonal congestion gaming.	Accepted for filing, subject to possible refund and further Commission orders as one of the "Unresolved Issues" (Issue No. 205 / Issue L.2) that has been pending in Docket Nos. ER-98-3760, EC-96-19, and ER96-1663 since the Spring of 2000. 3/30/98, 82 FERC ¶ 61,327.
5/21/1998	FERC: ER98-2343 ER98-2844 ER98-2883	ISO challenges market-based rate authority for AES on grounds that AES had not made proper showing (that market was competitive and/or AES lacked market power). Urges FERC to conduct time-differentiated study and to authorize bid cap pending proper showing by AES.	FERC approved market based rates and rejected bid-caps in an order dated June 30, 1998. 83 FERC ¶ 61,358. FERC responded on July 17, 1998 to requests for rehearing by ISO by allowing the ISO to impose temporary interim price-caps although it denied the motion to stay. 84 FERC ¶ 61,046. The follow-up order re-affirmed the temporary bid-cap. 85 FERC ¶ 61,123 (1998).

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6/01/1998	FERC: ER98-1127 ER98-1796 ER99-1115 ER99-1116 ER99-4160 ER94-1612	ISO challenges market-based rate authority for Dynegy on grounds similar to those asserted in AES docket.	FERC approved market based rates for Ancillary Services on July 10, 1998. 84 FERC ¶ 61,011. The follow-up order re-affirmed the ISO's temporary bid-cap authority. 85 FERC ¶ 61,123 (1998).
6/2/1998	FERC: ER98-2977	ISO challenges market-based rate authority for Reliant on grounds similar to those asserted in AES docket.	FERC granted market based rate authority on July 10, 1998. 84 FERC ¶ 61,013.
6/08/1998	FERC: ER98-2343 ER98-2844 ER98-2883	ISO makes supplemental filing challenging market-based rate authority for AES.	See above.
7/09/1998	FERC: ER98-3416 ER98-3417 ER98-3418	ISO challenges market-based rate authority for Duke, stressing the thinness of the market and ability of individual suppliers to set the market clearing price.	Accepted Market Based Rates for Filing on August 17, 1998. (84 FERC ¶ 61,186).
7/13/1998	FERC: ER98-2843 ER98-2844 ER98-2883 ER98-2971 ER98-2972 ER98-2977	ISO files an Emergency Motion in the AES and Dynegy dockets to set a cap of $500 on ancillary services markets to counter exercise of market power after a bid of $9,999 set the price for Replacement Reserves.	FERC responded on July 17, 1998 by allowing the ISO to impose temporary interim price-caps. 64 FERC ¶ 61,046. A follow-up order re-affirmed the temporary bid-cap. 85 FERC ¶ 61,123 (1998).

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7/16/1998	FERC: ER98-3416 ER98-3417 ER98-3418	ISO makes second filing challenging market based rate authority for Duke, stressing the potentially "enormous adverse consequences" to the California Markets.	Accepted market based rates for Filing on 08/17/1998. 84 FERC ¶ 61,186.
7/16/1998	FERC: ER98-3106	ISO challenges market-based rate authority for Williams, and seeks authority to cap Williams' bids at $500/MWh pending a proper showing by Williams.	FERC approved market based rates for Ancillary Services in a July 24, 1998 order. 84 FERC ¶ 61,072. FERC also noted that the ISO had temporary bid cap authority. ISO reduces cap to $250/MWh for Imbalance Energy, Ancillary Service, and Adjustment Bid markets.
7/27/1998	FERC: EC96-19-035	ISO files for approval of Amendment 10. Seeks approval to counter market power by procuring ancillary service outside the ISO control area.	Conditionally accepted, with procedures instituted, request by Commission for further explanation of proposed change, 7/31/98, 84 FERC ¶ 61,121.
8/18/1998	FERC: ER98-2843	MSC publishes preliminary report on ancillary services markets. Among other conclusions, the MSC finds that preliminary results suggested that the RMR contracts were most likely creating incentives to withhold capacity.	ISO and RMR unit owners enter into partial settlement in 4/99, effective 6/99, removing incentives for withholding.
8/24/1998	FERC: ER98-3106	ISO seeks rehearing of order granting market-based rate authority for Williams, again asserting need for time-differentiated study.	FERC granted rehearing on September 21, 1998. By order addressing several requests for market based rates, FERC approved market based rate authority and reaffirmed the ISO's authority to implement temporary

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			bid-caps. 85 FERC ¶ 61,123.
9/1998	ISO Governing Board	ISO Market Surveillance Unit (predecessor to the current Department of Market Analysis or "DMA") issues Market Redesign Status Report and Recommends approval of measures designed to, among other objectives, correct settlement price signals to close gaming opportunities for uninstructed imbalance energy deviations, and eliminate uninstructed energy and capacity payment for ancillary service deviations.	ISO Governing Board approves recommended redesign at 9/24/98 meeting.
9/09/1998	FERC: ER98-4301 ER98-4302	ISO challenges market-based rate authority for Mountain View and Riverside Canal Power, again stressing potential "extremely serious consequences in the ISO's Regulation and Reserve Service markets, permitting the exercise of market power, and producing extraordinarily high market clearing prices in some hours." Sought continuing authority to cap ancillary services bids.	FERC granted authority to sell Ancillary Services and Energy at market based rates in an order dated October 16, 1998. 85 FERC ¶ 61,060.
9/16/1998	FERC: ER98-3416 ER98-3417 ER98-3418	ISO seeks rehearing of orders granting market-based rate authority without a time-differentiated study or giving the ISO bid cap authority.	By order dated October 28, 1998, FERC authorized market based rates for all sellers of ancillary services and replacement reserves in California and directs the ISO to submit a proposal for the redesign of the Ancillary Services market, which ISO completes on 3/1/99. 85 FERC ¶ 61,123. This order also addressed AES dockets.

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9/29/1998	FERC: ER98-4498	ISO challenges market-based rate authority for San Diego Gas & Electric, stressing previous concerns.	FERC conditionally approved market based rates for the sale of certain Ancillary Services for SDG&E and Sempra by order dated October 28, 1998. 85 FERC ¶ 61,122.
12/4/1998	FERC: ER99-826	ISO files for approval of Amendment 12. Seeks to extend the ISO's authority to impose caps on energy bids.	Rejected, but allowed ISO to establish purchase price caps on an interim basis, 1/27/99, 86 FERC ¶ 61,059.
12/11/1998	FERC: ER99-896	ISO files for approval of Amendment 13. Seeks to rescind payments to suppliers when they deviate from prior scheduled commitments without ISO approval (i.e. "Nonpayment for Uninstructed Deviations")	Accepted as modified (e.g., to make the language more precise as to when the payment will not be made), 2/9/99, 86 FERC ¶ 61,122.
3/1999	Market Notice	ISO changes operating procedure M401 to counter intra-zonal congestion gaming.	New procedure authorizes use of RMR units to resolve congestion. All intra-zonal congestion where there were less than three suppliers (except on Path 26 that was intra-zonal at the time) was declared non-competitive and subject to mitigation by RMR units if available.
3/1/1999	FERC: ER99-1971	ISO files for approval of Amendment 14. Proposes redesign of Ancillary Services markets to make them workably competitive (i.e. to eliminate opportunities for the exercise of market power). ISO proposes "Rational Buyer" program in which lower cost higher quality services could replace higher cost lower quality (longer to start-up) services. ISO also seeks authority to impose costs (effectively to penalize) for extra replacement reserve on market participants that either over-schedule	Accepted (5/26/99), subject to certain conditions, e.g., that purchase cap on imbalance energy be eliminated by 11/15/99, 87 FERC 61,208.

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		generation or under-schedule load.	
4/6/1999	FERC: ER98-2843	MSC and Market Surveillance Unit issue final report on impact of RMR units on California markets. Report confirms and expands upon findings in preliminary report (e.g. RMR contract design promotes withholding) released on 8/18/98.	ISO and RMR unit owners enter into partial settlement in 4/99, effective 6/99, removing incentives for withholding.
5/25/1999	N/A	Enron submits schedule in the PX market calling for delivery of more energy (2900 MW) across Path 13 (Silverpeak) than the path's known capacity (15 MW); both ISO and PX conduct investigations.	ISO Department of Market Analysis assisted the PX Market Compliance Unit investigation and suggested measures which would prevent this event from re-occurring. PX concluded a settlement agreement with Enron on April 28,2000 by which Enron agreed not to engage in conduct again and paid fine to defray investigations costs. Investigation filed with FERC.
6/14/1999	FERC: ER99-896	ISO begins manual implementation of "no pay" policy. Under the policy, the ISO rescinds payments for ancillary services capacity where the source units are unavailable for dispatch in real time (to provide reserve energy in real time if needed).	Approximately $57 million in payments rescinded to date.
6/18/1999	FERC: ER99-3301	ISO files for approval of Amendment 18. Proposes redesign of market rules for managing intra-zonal congestion in real time to eliminate opportunities for the exercise of market power. To address strategic bidding behavior, the ISO proposed to use the lower of	Accepted, 7/30/99, 88 FERC ¶ 61,146.

Date	Forum	Objective	Result
		adjustment bids or imbalance energy bids to manage intra-zonal congestion rather than being required to exhaust adjustment bids prior to calling on imbalance energy.	
7/20/1999	DMA Monthly Market Analysis Report (6/1/99-7/13/99)	The ISO highlights two large negative price spikes "caused by market participants submitting large negative bids for upward regulation with the apparent belief that other bids for downward regulation would set the market-clearing price during these hours. This bidding strategy would allow market participants to gain large market shares for upward regulation while receiving a positive price set by high demands for downward regulation. In these particular hours, this strategy backfired as market participants collectively bid enough capacity at negative bid prices to cover demand for both upward and downward regulation.	The ISO implemented software changes necessary for clearing of the upward and downward regulation markets at separate market clearing prices. This change went into effect in August 1999.
8/26/1999	ISO Governing Board	ISO Governing Board approves recommended changes in protocols for paying for out of market purchases.	Protocols reduce opportunity for gaming in the congestion management market.
9/17/1999	FERC: ER99-4462	ISO files for approval of Amendment 21. Seeks to extend the ISO's authority through November 15, 2000 to cap Ancillary Services and Imbalance Energy prices.	Accepted, 11/12/99, 89 FERC 61,169 (1999).
9/27/1999	FERC: ER99-4545	ISO files for approval of Amendment 22. Seeks to amend FTR (firm transmission rights) tariff provisions to allow for more effective monitoring and possible mitigation of market power.	Conditionally approved, 11/24/99, 89 FERC ¶ 61,229.

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
11/10/1999	FERC: ER00-555	ISO files for approval of Amendment 23. The ISO proposes revised methodologies for out-of-market payments for Participating Generators dispatched to meet system needs without having placed a bid into the ISO Markets. The ISO also proposed an amendment to mitigate problems associated with the exercise of locational market power.	FERC accepted the modified payment for out-of-market purchases but rejected the proposed mitigation of locational market power and ordered an integrated redesign of intra-zonal congestion management. 1/7/00, 90 FERC ¶ 61,006. FERC denies rehearing on 4/12/00, 91 FERC ¶ 61,026.
3/2000	ISO Governing Board	DMA releases analysis of then existing price cap ($750). Recommends that cap be retained.	Recommendation is adopted by the ISO Governing Board.
3/9/2000	ISO Market Surveillance Committee	ISO MSC publishes report concluding, based on bid data, supply ownership and conditions, and lack of demand response, that the ISO energy and ancillary services markets are not workably competitive.	N/A
4/5/2000	Market Notice	ISO modifies target price methodology to prevent game in which suppliers submit phantom decremental energy bids.	Eliminated specific game but created other problems addressed in further modification in 10/2000.
5/2000	N/A	ISO DMA commences investigation of AES/Williams unit outages resulting in use of higher priced market units in place of less expensive RMR units; concludes that gaming has occurred and refers matter to FERC.	FERC and AES/Williams agree to settlement in 4/2001 by which AES/Williams agrees to restore $8 million to the California markets; California attorney general initiates antitrust investigation which is still ongoing.

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Date	Forum	Objective	Result
5/2000	N/A	ISO DMA investigates out of market sales to ISO by PowerEx in which ISO forced to commit to block purchases of energy, resulting in more power than needed during select hours.	ISO determined that purchase costs approximated amounts that would have been paid through real time market; no further action taken against PowerEx; block sales practices of all market participants monitored during remainder of Summer 2000, with no further action required.
6/14/2000	Market Notice	ISO changes method of procuring replacement reserve in order to counter exercise of market power and reduce costs.	N/A
6/28/2000	ISO Governing Board	ISO convenes special Board meeting and recommends reducing price cap from $750/MWh to $500/MWh.	Price cap reduced from $750/MWh to $500/MWh
7/21/2000	FERC: EL00-91	ISO MSC publishes report for submission to FERC noting that bidding evidence, continuing and newly created market flaws between March and July 2000 further supports conclusion that ISO energy and ancillary services are not workably competitive.	N/A
7/21/2000	ISO Market Participants	ISO issues market notice to all participants forbidding a form of gaming in the ISO congestion market (practice of scheduling non-firm exports to resolve congestion and subsequently canceling delivery before real-time operations--identified as the "non-firm export" strategy in the 12/8/00 Enron memorandum).	ISO has not detected a recurrence of the strategy since the notice was issued.
8/1/2000	ISO Governing Board	ISO recommends reducing price cap from $500/MWh to $250/MWh.	Price cap reduced from $500/MWh to $250/MWh

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Date	Forum	Objective	Result
8/10/2000	DMA Market Analysis Report	DMA publishes Report on California Energy Market Issues and Performance: May-June, 2000. Report concludes that, even accounting for high demand, doubling gas prices and no new generation being built, energy prices between May and June 2000 were abnormally high and suggest the exercise of market power by major suppliers.	N/A
9/1/2000	FERC: ER00-2383	Implemented automated "No Pay" system to eliminate payments for unavailable Ancillary Service capacity and energy.	Approved 91 FERC ¶ 61,324. $72 million in capacity payments rescinded to date.
9/10/2000	FERC: ER00-2383	Implemented 10-minute settlement to improve load following function of ISO Imbalance Energy market.	Approved 91 FERC ¶ 61,324.
9/14/2000	FERC: ER00-3673	ISO files for approval of Amendment 31. Seeks to extend price cap authority to all ISO markets and for period extending beyond November 15, 2000.	Rejected, 11/1/00, 93 FERC ¶ 61,121.
9/14/2000	FERC: ER00-3673	MSC files report on events of Summer 2000. Report concludes: [T]he California Electricity Market "[i]s" composed of a relatively small number of firms, some of which own a sizable fraction of the total electricity generating capacity located in the ISO Control Area. The geographic distribution of generation unit ownership can allow some owners to exercise locational market power during certain system conditions. In addition, the amount of generating capacity owned by some market participants allows them to exercise market power during high load conditions, when there is not a physical scarcity of available generating capacity to serve this load."	N/A

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
10/20/2000	FERC: EL00-95	ISO files Offer of Settlement with FERC in the docket covering FERC's investigation into the Western Electricity Markets. Offer proposes balanced program of mitigation and incentives to reduce underscheduling of load and to commit resources in advance of real time to serve California load. Key elements include: a $100/MWh price cap with exemptions: (1) if an owner demonstrates that a payment of $100/Mwhr would be insufficient to cover the variable operating cost of a unit and make some reasonable contribution to fixed cost recovery, a higher cap would be fixed for that unit but that price would not establish the Market Clearing Price; (2) Generation fired by renewable resources would be exempt; (3) owners and operators whose units do not exceed 50 MW would be exempt; (4) incremental Generation (additions to existing units and new units) would be exempt; (5) any owner or marketer who demonstrates that it has committed 70% or more of the availability of its in-State portfolio to an in-State Load-serving entity for a term extending at least through October 15, 2002, would be exempt, and (6) imports would be exempt.	In its November 1 and December 15 Orders, FERC proposes to remove constraints on utilities forward purchases, but imposes no specific requirements on either load serving entities or suppliers.
10/20/2000	FERC: EL00-95	ISO files Declaration of Eric Hildebrandt (ISO DMA) in support of Offer of Settlement. Declaration provides evidence of the exercise of market power by suppliers based on analysis of actual bid data and urges adoption of mitigation measures of the type proposed in the offer of settlement.	N/A

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Date	Forum	Objective	Result
10/25/2000	ISO Governing Board	ISO Governing Board adopts plan for load differentiated bid caps (with higher caps based on the greater needs at higher load levels).	Rendered moot by FERC's November 1 and December 15 orders.
11/2000	N/A	ISO commences inspection of power plants in conjunction with CPUC and FERC, seeking evidence of physical withholding.	Insufficient evidence of withholding through deliberate use of forced outages. CPUC and FERC both independently performed follow-up and obtained confidential information pursuant to their oversight authority.

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11/22/2000	FERC: EL00-95	ISO files comments to FERC's 11/1/00 Order. The comments urge a west-wide, rather than California-only, mitigation approach, in order to counter "megawatt laundering" (aka "ricochet") and express concerns that the FERC order would further encourage under-scheduling of load. The comments urge the imposition of symmetrical penalties for both under-scheduling load and over-scheduling supply. Illustrative excerpts: “We believe that, to be effective, the approach proposed in the November 1st Order would require imposition of similar bid caps throughout the Western region with which the California market is integrated. A price mitigation approach applicable only to California markets could give rise to gaming…. The ISO is also concerned that the Commission's approach may actually exacerbate underscheduling…. Depending on how high these bids are relative to the real-time penalty for underscheduled load, load serving entities may prefer to have their load not clear the PX market and consequently rely on the ISO real-time market. Clearly, this outcome would be at odds with the intent of the November 1st Order." “There is absolutely no disagreement that the very high level of commerce regularly being transacted in the ISO’s real time market is entirely unacceptable, from both a reliability and cost mitigation standpoint….[A balancing market] must not be a principal commodity market for load which could have been anticipated and therefore scheduled.” “We have concerns with the proposal in the November 1st Order for addressing underscheduling. First, it does not mandate forward contracting by supply – a necessary requirement that we already have addressed as part of our market power mitigation proposal. Second, it properly imposes a penalty for real-time deviations but improperly assigns that penalty just to one side of the market, to load. The penalty must apply to both load and supply if the negotiating leverage is to remain in balance.”	FERC delayed implementing west-wide mitigation measures until its June 19, 2001 order. FERC granted the ISO's emergency request for under-scheduling penalties on December 8, 2000, but rejected a subsequent request (see below) for penalties for schedule deviations by both suppliers and load in March 2002. A new request for deviation penalties is now pending.

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12/2000	FERC	ISO's DMA initiates investigation of generators' failure to follow dispatch instructions and refers documentation of circumstances surrounding this matter to FERC.	FERC staff elected not to pursue matter.
12/1/2000	FERC: EL00-95	The ISO's Market Surveillance Committee (MSC) files comments to FERC's November 1, 2000 Order. These comments express concern about the opportunities for megawatt laundering and urge the imposition of symmetrical deviation penalties on suppliers and load serving entities.	FERC delayed implementing west-wide mitigation measures until its June 19, 2001 order. FERC granted the ISO's emergency request for under-scheduling penalties on December 8, 2000, but rejected a subsequent request (see below) for penalties for schedule deviations by both suppliers and load in March 2002. A new request for deviation penalties is now pending.
12/8/2000	FERC: ER01-607	ISO files an emergency petition for approval of Amendment 33. Seeks penalties for under-scheduling of load and for withholding of supply (refusing to comply with emergency dispatch instructions). Also seeks to advance by 3 weeks FERC's previously announced plan to replace "hard" price cap with a "soft" cap. Seeks review and refund regime for excessive charges.	Accepted on an emergency basis, 12/8/00, 93 FERC ¶ 61,239 ISO to date has fined suppliers $122 million in penalties for failure to abide by dispatch instructions. In an Order dated 12/19/01, FERC suspended the ISO's authority to assess the penalty during the pendency of FERC's west-wide mitigation measures (beginning 6/19/01 and due to expire on 9/30/02). 95 FERC ¶ 61,418

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
			Subsequent ISO refund requests (see below) have been granted and a formula established for recovery of refunds. A proceeding to determine recovery amount is ongoing.
12/13/2000	DOE	ISO seeks emergency order from the U.S. Secretary of Energy to compel in-state and out of state suppliers to offer available capacity to the California markets.	ISO's request is granted in a series of orders beginning on December 14, 2000 and continuing until February 6, 2001.
1/16/2001	FERC: EL00-95	ISO seeks rehearing of FERC's December 15, 2000 Order, again asserting serious concerns regarding under-scheduling, withholding and megawatt laundering. Also seeks to apply review and refund regime to ISO out-of-market (OOM) purchases. Illustrative excerpts: "OOM transactions with suppliers of Energy from outside the ISO's Control Area should be subject to the same reporting and cost justification requirements that apply to suppliers whose accepted Energy bids are above the breakpoint. Otherwise, in-state suppliers could seek to avoid both the OOM payment provisions in the ISO Tariff and the reporting and justification requirements of the December 15 Order by arranging exports to third parties outside the ISO's Control Area…. Furthermore, even in the absence of ricochet transactions with in-state suppliers, if suppliers outside the ISO's Control Area are not subject to the reporting and justification	Commission issues April 26, 2001 Order, 95 FERC ¶ 61,115, modifying mitigation methodology from December 15, 2000 decision. However, the Commission restricts mitigation only to California and only during system emergency conditions. ISO seeks further rehearing (see entry for May 25, 2001).

Date	Forum	Objective	Result
		requirements of the December 15 Order, they will have an incentive to withhold bids from the ISO markets and wait for OOM negotiations in order to avoid those requirements."	
1/23/2001	FERC; EL00-95	ISO DMA presents draft market power mitigation proposal at FERC technical conference. Proposal includes measures to mitigate locational market power, to eliminate underscheduling of load and gaming of congestion management markets, and to counter physical withholding of supply.	N/A
2/3/2001	N/A	ISO sends letter to every in-state supplier seeking confirmation that they will comply with ISO emergency dispatch orders upon expiration of the last Department of Energy Order.	All but 4 suppliers provide such confirmation and continue to comply with emergency dispatch instructions.
2/6/2001	Federal Court	Upon expiration of DOE order, ISO files lawsuit in federal court against non-complying suppliers for temporary restraining order and injunction compelling compliance with emergency dispatch instructions.	Federal District Court grants a series of temporary restraining orders against the suppliers. FERC joins the suppliers in an appeal challenging the ISO's authority to assert a private right of action against the suppliers under the Federal Power Act. The appeal is sustained and the TROs dissolved in April 2000.
2/6/2001	FERC: EL00-95	ISO files comments in response to technical conference by FERC on market monitoring and mitigation measures. ISO argues that FERC's methodology for determining market power is antiquated and ineffective.	N/A

Date	Forum	Objective	Result
		Illustrative excerpt: "The ISO long ago concluded that market concentration levels alone are not a very good indication of an entity's ability to exercise market power in the California electricity markets. The ISO believes that while such indicia may be appropriate in one-time (i.e., static) determinations as to whether an entity can exercise market power (such as in a traditional horizontal merger analysis), market concentration analyses based on installed or contractually committed capacity are inappropriate for dynamic hourly markets, such as those in California. Moreover, if such hourly markets have very inelastic demand and tight supply margins, such as exists in California's wholesale electricity markets, even a supplier having only a small market share can exercise market power during certain conditions."	
2/6/2001	FERC: EL00-95	DMA files more detailed statement of proposal presented at the January 23 FERC technical conference.	N/A
3/1/2001	FERC: EL00-95	The ISO and EOB request that the Commission issue a Notice to Market Participants that wholesale sales pursuant to bids above the $150 breakpoint continue to be subject to review beyond the 60-day period approved in the December 15, 2000 Order. The ISO and the EOB also request that the Commission: (1) require generators to provide the ISO and California state officials with cost data provided to the Commission; and (2) institute a hearing regarding the justness and reasonableness of sales by public utility sellers in the PX and ISO markets since December 8, 2000.	FERC grants the request in part, in a series of orders beginning 3/9/01, and orders refunds totaling $124.6 million (3/9- $69 million, 3/16- $55 million, 4/16 $587,000, and $5/14 - $0). However, FERC's methodology is limited to a proxy clearing price applied only during Stage 3 emergency conditions. FERC grants the rehearing requests of the ISO and other parties in the June 19, 2001 and requires additional refunds for the period

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
		The ISO responds to statements in FERC's November 1 and December 15 Orders, wherein FERC staff found no evidence of market power exercised by specific suppliers, by filing two DMA studies of market power by specific suppliers. Illustrative excerpts: "Many suppliers used well planned strategies to ensure maximum possible prices at all load conditions. A 50 MW increase in the amount demanded from a supplier's portfolio would have increased the market clearing price substantially. A review of suppliers' bid prices above and below the actual dispatch quantity revealed the strategic nature of their bid schedule."	beginning October 2, 2000. The June 19 Order uses a different methodology that applies to all sales in all hours but still fails to take into account strategic withholding (i.e. doesn't consider units that were not bidding into the market). Preliminary estimates indicate that refunds under the ordered methodology could approach $1 billion. A proceeding to determine the specific refund recovery is currently pending before a FERC administrative law judge.
3/22/2001	FERC: EL00-95	ISO files comments to FERC Staff's Recommendation on Prospective Market Monitoring and Mitigation for the California Wholesale Electric Power Market. Again, urges west-wide, rather than California-only, mitigation in order to avoid megawatt laundering	Commission limits mitigation to California only in its April 26 order, but then grants rehearing and applies mitigation on a west wide basis in June 19, 2001 Order.
3/22/2001	FERC: EL00-95	DMA files a report to FERC with empirical evidence supporting the existence of strategic bidding behavior in the ISO real-time markets. This report focused on the question of whether the behaviors of individual suppliers caused price increases in the real-time markets, and examined bids and bidding strategies of individual suppliers. The report ultimately concluded that individual suppliers' strategic behaviors did increase prices in the real-time imbalance energy markets.	N/A

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
3/22/2001	FERC: EL00-95	DMA files a second report to FERC regarding the exercise of market power in the California electricity markets. Relying again on the ISO's mark-up methodology to assess market power, this analysis explicitly includes the costs and limitations associated with the emission of nitrogen oxides (NOx) and the associated imposed resource scarcity. Ultimately, the report concludes that over 30% of wholesale energy costs may be attributed to market power, at a net cost of $6.7 billion to California consumers.	N/A
4/2/2001	FERC: ER99-1722	ISO challenges renewal of market-based rate authority for Williams, citing overwhelming evidence of the exercise of market power by Williams and insufficiency of the showing made by Williams.	FERC has never responded to the request.

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
4/6/2001	FERC: EL00-95	ISO files a proposed market stabilization plan, to be implemented before the start of Summer 2001, to combat market power. Plan includes measures to mitigate market power in all hours and to prevent megawatt laundering. Specifically the plan called for: (1) establishment of a new availability payment to ensure full recovery of costs by all participating generators in exchange for an obligation to satisfy demand in California; (2) implementation of resource-specific bid caps; and (3) creation of a forward energy market in which procurement of energy and ancillary services would be "optimized". Illustrative excerpts: "[T]here is no doubt that market power has been exercised in all hours and under various conditions. Therefore, if mitigation were limited to a narrow set of transactions or circumstances, there would still be ample opportunities and incentives for resources to withhold supply from California until the pressure of real-time operation forces the CAISO to purchase large quantities of power at exorbitant prices. The only alternative the CAISO sees to the measures proposed in this Market Stabilization Plan are either to be forced into regular System Emergencies, which might necessitate the curtailment of exports in real-time on a regular basis, thereby increasing the volatility of real-time operation and threatening system reliability. California would also continue to suffer the impacts of outrageously high power costs. Absent a regional approach to the tight supply conditions throughout the western region, California must have stronger ability to direct native resources to serve native load…. If the Commission wishes to see competitive electricity markets develop and thrive in the West within the next few years it must give us the tools needed for this summer to navigate between the Scylla and Charybdis of extensive rolling blackouts and devastating power costs. Unlike Odysseus, the capacity indigenous to California easily and often finds its way home and returns as high-priced MWs purchased out-of-market. Therefore, it is critical that the Commission permit the CAISO to call on resources to serve in-control area load, subject to adequate compensation."	Commission adopts its own mitigation plan by order dated April 26, 2001, 96 FERC ¶ 61,115. However, the Commission's plan only imposes price mitigation during periods of reserve deficiencies and doesn't address megawatt laundering.

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
4/9/2001	FERC: EL00-95	ISO seeks rehearing of March 9 refund order, arguing that the methodology used, including limitations on hours for which refunds were granted, was erroneous.	See discussion above. The March 9 order effectively was superceded by FERC's June 19, 2001 order adopting a different methodology applicable to all hours of operation.
4/9/2001	FERC: EL00-95	DMA completes a follow-up analysis in response to inquiries from FERC regarding the two previous analyses. Again relying on DMA's mark-up methodology, the report arrives at the following conclusions: 1) $4 billion in excess revenues associated with market power can be tied to specific schedules and transactions in the PX and ISO markets. 2) $2.4 billion in excess revenues took place in the ISO markets, $1.9 billion in the real-time markets. $3 billion in excess revenues in the PX and ISO markets involved sales by entities under FERC jurisdiction possessing market-based rate authority. $1 billion in excess revenues involved public utilities or other entities not under FERC jurisdiction.	N/A
5/25/2001	FERC: EL00-95	ISO seeks rehearing of FERC's April 26, 2001 order, arguing that the proposed mitigation was improperly limited in scope (emergency hours only, California only, and energy markets only) and would leave unchecked megawatt laundering. Illustrative excerpts:	FERC effectively overturned the 4/26 order in an order dated 6/19/01, which provided for west-wide mitigation across all hours of the ISO's operations.

Date	Forum	Objective	Result
		"If, in the face of overwhelming evidence of market power abuse, the Commission sits silently by or responds ineffectively out of an unfounded faith that the market itself will resolve the current crisis, the evolution to a competitive electric market will surely be stalled, if not ultimately abandoned." "The April 26 Order, the denouement of the Commission's passion play on market power mitigation, is further evidence of the Commission's failure to address the obvious, constant exercise of market power. Frankly, it does not and should not require detailed analysis by economists to recognize that the phenomenal transfer of wealth is the product of supplier exploitation of the current market situation. Thus, while the public outrage is understandable, what is unimaginable is the Commission's failure to impose broader mitigation measures. The Commission has totally abdicated its responsibility to ensure just and reasonable rates. Despite championing the attributes and benefits of regional coordination and markets, the Commission has left wide open California's regional "back door" and totally failed to address the "MW laundering" issue – a problem that can only be effectively addressed through regionally-applicable price mitigation measures….The life blood is flowing, and a tourniquet must be applied now in the form of comprehensive, effective measures applied region-wide. It is high time to put down the fiddle and to extinguish the fire that is rapidly consuming California's economy."	
5/25/2001 6/7/2001	FERC: ER99-1722 ER98-2184 ER98-2185	In separate dockets, ISO files emergency motions immediately to suspend or terminate market-based rate authority for the five largest California suppliers (AES/Williams, Duke, Dynegy, Mirant, Reliant)	FERC has never responded to the requests. In AEP Power Marketing, 97 FERC ¶ 61, 219, the Commission, concluded that, because of significant

Date	Forum	Objective	Result
	ER98-2186 ER98-2680 ER98-2681 ER98-2682 ER99-2774 ER99-1785 ER99-2784 ER98-1127 ER98-1796 ER99-1115 ER99-1116 ER99-4160 ER94-1612 ER97-4166 ER99-1833 ER99-1843 ER99-1841 ER99-1842 ER98-927 ER98-928 ER98-930 ER98-931 ER98-2878 ER99-1801	pending establishment of effective mitigation plan and refund program, and conclusion of proceedings to determine whether suppliers had exercised market power.	structural changes and corporate realignments that have occurred and continue to occur in the electric industry, its hub-and-spoke analysis (the basis upon which the prior market based rate authorizations were granted) no longer adequately protects customers against generation market power in all circumstances. The Commission proposed to implement a Supply Margin Assessment to determine if suppliers are pivotal to the market. FERC proposes to exempt from the SMA screen all sales, including bilateral sales, into an ISO or RTO with Commission-approved market monitoring and mitigation program.
6/19/2001	FERC: EL00-95	DMA completes an updated analysis of excess payments attributed to market power in the California wholesale electricity markets. Building on previous analyses, the	N/A

Date	Forum	Objective	Result
		report arrives at the following conclusions: 1) Energy costs by the ISO and the California Department of Water Resources between March and May 2001 exceeded competitive levels by \$2.3 billion, in excess of the roughly \$6.7 billion in excess revenues already charged to California consumers, bringing the total up to \$8.9 billion (discrepancy due to rounding) 2) Up to 5.4 billion is attributable to suppliers with FERC-granted market-based rate authority.	
6/25 - 7/9/2001	EL00-95	ISO presents evidence and testimony in refund settlement conference before FERC administrative law judge in Washington, DC	Parties were unable to achieve a settlement. In an order dated 7/25/2001, FERC set the matter for hearing before another administrative law judge. Proceedings are ongoing.
7/6/2001	FERC: ER98-2680 ER98-2681 ER98-2682 ER99-1785	ISO challenges renewal of market-based rate authority for Duke, reiterating arguments from the ISO's 6/7/01 filing.	FERC has never responded to the challenge.
7/26/2001	ISO Compliance Department	ISO observes an unusually high number of Dispatch instructions declined in apparent violation of a "must-offer" obligation established under FERC's June 19, 2001 Order and reports the discovery to the FERC Office of Market Oversight and Enforcement.	Pending.

Highlights of ISO Actions re: Gaming and/or Market Power

Date	Forum	Objective	Result
7/30/2001	FERC: ER99-2079 ER99-2081 ER99-2082 ER99-2083 ER99-1801	ISO challenges renewal of market-based rate authority for Reliant, reiterating arguments from the ISO's 6/7/01 filing.	FERC has never responded to the challenge.
8/15/01	ISO Compliance Department	ISO provides FERC Office of Market Oversight and Enforcement with transcripts concerning an under-frequency event in early August..	Pending
9/2001	N/A	DMA commences investigation of under-generation by suppliers, possibly in order to gain offset against amounts owed suppliers from earlier months.	DMA found no evidence of a consistent pattern by suppliers to under-generate; no further action taken
9/7/01	ISO Compliance Department	ISO provides FERC Office of Market Oversight and Enforcement with: information regarding perceived violations of the 'must-offer" obligation including taking generation off-line without the permission of the ISO and continuing to declined dispatch instructions.	Pending
12/14/2001	FERC: EL00-95	ISO files Second Quarterly Report in response to FERC's April 26, 2001 and June 19, 2001 mitigation orders and reported that for the period of September through November 2001, the ISO continued to see certain suppliers submitting energy bids well in excess of their proxy bid cost, *i.e.*, incremental cost. Approximately 20 percent of the total volume bid into the ISO BEEP stack in September and October 2001 had prices above the $91.87/MWh Non-Emergency Clearing Price Limit.	Following the Commission's June 19 Order, Western regional Spot prices dropped from over $120/MWh to under $60/MWh in two days. Prices have since continued downward and stabilized between $20/MWh and $30/MWh. The ISO believes that these prices confirm that the Commission's *comprehensive* mitigation measures have been effective in moderating prices throughout the Western *regional*

Date	Forum	Objective	Result
			marketplace.
12/28/2001	FERC: ER02-651	ISO files for approval of Amendment 41. Seeks to counter over-generation strategy by applying cap to "negative decremental" dispatches (dispatches in which suppliers are paid to reduce output).	Accepted for filing, suspended for five months, effective July 26, 2002 subject to further Commission order, 2/26/02, 98 FERC ¶ 61,187
1/31/2002	FERC: ER02-922	ISO files for approval of Amendment 42. Seeks to impose additional penalties on participants who deviate from prior scheduled commitments without ISO approval (i.e. uninstructed deviations), and to mitigate locational market power.	Rejected pending the ISO's comprehensive market redesign, 3/27/02, 98 FERC ¶ 61,327
2/4/2002	FERC	ISO provides FERC Office of Market Oversight with a comprehensive listing of Dispatch instructions declined for "Economic Considerations" or for which there was no response to the instruction in apparent violation of the must-offer obligation between June 21 and October 20, 2001.	N/A
3/26/2002	FERC: EL00-95	ISO files Third Quarterly Report in response to FERC's April 26, 2001 and June 19, 2001 mitigation orders and provides extensive data demonstrating the extent that market power continues to be a factor in the California energy market. Analysis of the bidding of individual suppliers showed that at least four of the five major owners of gas-fired generators have consistently bid significant amounts of capacity well in excess of variable operating costs. Moreover, bid prices appear to remain relatively constant, rather than reflecting	Following the Commission's June 19 Order, Western regional Spot prices dropped from over $120/MWh to under $60/MWh in two days. While prices increased for a brief period in late June and early July 2001 due to a heat wave in the Southwest, overall prices remained below the "soft cap" level of $91.87/MWh, except at Palo Verde. Following this brief occurrence of

Date	Forum	Objective	Result
		significant variations in spot market prices over time, the heat rates of different units, or other factors that would be expected to affect bid prices under competitive conditions. In addition, 70 to 80 percent of the capacity from combustion turbines, as well as significant quantities of excess capacity from on-line steam units, have been bid into the Real Time Market at prices at or near the price caps that have been in effect. The ISO's analysis in the Third Quarterly Report also demonstrates that numerous suppliers bid into the Real Time Market excess capacity from steam units that are on-line and scheduled to operate at prices far in excess of marginal costs. For example, the average bid price for these units in October 2001 was about 75 percent higher than marginal costs. The ISO also observed "hockey stick" bidding where suppliers bid all peaking capacity (combustion turbines) at a price at or near the price cap, while bidding excess capacity from on-line steam units at prices that are somewhat lower (but often still significantly in excess of marginal costs).	prices above the cap, prices continued downward and stabilized between \$20/MWh and \$30/MWh. The ISO believes that these prices confirm that the Commission's *comprehensive* mitigation measures have been effective in moderating prices throughout the Western *regional* marketplace.
3/26/2002	ISO Compliance Department	ISO provides FERC Office of Market Oversight with a comprehensive listing of Dispatch instructions declined for "Economic Considerations" or for which there was no response to the instruction in apparent violation of the must-offer obligation between October 21, 2001 and December 31, 2001.	N/A

Date	Forum	Objective	Result
		Illustrative excerpt: "This report summarizes 783 instances totaling over 23,000 MW in which generators have declined Dispatch Instructions because of "Economic Considerations". The report goes on to include nearly 590 instances totaling roughly 24,000 MW in which generators have failed to respond to Dispatch Instructions in the time allowed."	
4/19/2002	FERC: ER01-1267 ER01-1270 ER01-1278	ISO challenges renewal of market-based rate authority for Mirant, citing overwhelming evidence of the exercise of market power by Mirant and need for a factual record demonstrating that the California markets are competitive. Also requests that the matter be set for hearing.	FERC has not responded to the request.
5/1/2002	FERC: ER02-1656	ISO files proposal for comprehensive Market Redesign. Includes elements designed to thwart withholding, megawatt laundering, and uninstructed deviations. Seeks continuation of current west-wide mitigation measures pending finding that the markets are competitive or full implementation of the redesign (scheduled for Spring 2004).	Pending
6/14/ 2002	ISO Department of Market Analysis	ISO issues a Market Notice describing five trading practices that it has determined are clearly detrimental to the operation and efficient functioning of a competitive market. These practices are described as prohibited market activities.	Market Participants are advised that certain practices are prohibited. The ISO is in the process of working with Market Participants to clarify the specific aspects of these practices that cause them to be prohibited market

Date	Forum	Objective	Result
			activities.
6/14//2002	ISO Compliance Department	ISO issues a Market Notice describing the initiation of a comprehensive review by the ISO of its oversight, investigation and enforcement authority. As part of the review, the ISO will develop a comprehensive strategy for further clarifying market rules and assuring that consequences for violating those rules are appropriate, and that necessary changes to those rules or consequences can be efficiently designed, approved and implemented as required over time.	Market Participants are advised of the ISO's intent to thoroughly review and enhance its oversight and investigations activities, and encouraged to provide comments and work with the ISO to design effective mechanisms.
6/17/02	FERC: ER02-1656	ISO files detailed tariff provisions regarding the long term elements of its market redesign proposal. Submission includes revised procedures for ISO commitment of generators and a capacity requirement on load serving entities. These measures attempt to ensure adequacy of supply and efficient use of generating resources.	Pending
June 21, 2002	ISO Compliance Department	The ISO issues a draft white paper on its Oversight and Investigations Activities Review. The draft white paper describes the project purpose, objectives, and timetable; possible approaches; and enforcement issues to be addressed.	Stakeholders are advised of the ISO's initial ideas and the areas to be addressed in the initiative. Input is obtained from a conference call on June 26, a presentation at the June 27 Market Issues Forum meeting, and written comments that were due to the ISO on July 1.

Highlights of ISO Actions re: Gaming and/or Market Power

EXHIBIT 2

California Independent System Operator
Summary Analysis of Gaming Strategies Described in Enron Memoranda

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
1. Inc-ing Load into Real Time Markets (A.1.) a.k.a "Fat Boy" (B.6)	This is a form of "uninstructed deviation", also referred to as "overscheduling of load" through which suppliers can receive real time market price (as price takers) for power provided without ISO dispatch instruction. This can be done by in-state generators without overscheduling of load simply by overgenerating in real time. Since imports must be scheduled over inter-ties and cannot simply "overgenerate", importers can schedule imported generation against	ISO aware of the possibility of overscheduling of load at start of the market. To work, this practice counts on systematic load underscheduling by utilities and other major buyers.	Higher penalties for uninstructed deviation were implemented in September 2000 and additional penalties requested in January 2002. Actions taken in 2000 to create disincentive for uninstructed deviations include (1) a new target price methodology (which resulted	Like load underscheduling, load overscheduling can destabilize market and cause reliability concerns by providing erroneous information to ISO operators. Thus, as a general rule, accurate forward schedules are more consistent with reliable grid	Current and proposed new market design further discourages uninstructed deviations by generation resources and imposes explicit penalties. Incentive for this behavior is significantly reduced as load forward schedules. If most loads have been forward

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
	"phantom load", which creates a positive uninstructed deviation in real time for which they receive the real time market clearing (MCP).		in a price of $0 for uninstructed deviations when excessive over-generation existed), and (2) new 10-minute settlement rules, under which positive uninstructed deviations are paid a decremental energy price, which is often lower than the price of incremental energy dispatched by the ISO.	operations. However, in the face of the massive, systematic load underscheduling experienced in Summer 2000, this practice reduced the aggregate under-scheduled load, and may not have had detrimental impacts under such conditions.	scheduled, then such practice will depress real time prices to the disadvantage of the party who over-scheduled.
2. Export of Power from California (B.1)	During some periods when prices hit the ISO price caps, Enron and others could buy power from CA	Of intensive concern during 2000 when "hard caps" were in	ISO's filing with FERC in October 2000 noted that the	This problem led to the implementation of a "soft cap" in	This is always a concern when spot market supply is tight and price caps

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
	and sell to outside markets at higher prices	place. Monitoring of prices in regional markets through early November showed that prices in regional markets tended to follow (and not exceed) the ISO real-time price. Until late November 2000, the ISO rarely made out-of-market purchase at prices exceeding the "hard caps" in effect in California during this period, providing further	potential for such behavior required (1) emphasis on FERC-sanctioned long-term contracts between suppliers and load in CA, and (2) region-wide approach to market power mitigation (which did not get implemented by FERC until June 19 2001). The dramatic spikes in the natural gas prices in late November and early December 2000 (along with	December, and aided in the eventual collapse of PX in January 2001. Financial impact on consumers will ultimately depend on level of refunds ordered by FERC for sales of imports to buyers in ISO system (including CERS) during May 2000-2001. FERC's December 15 Order (2000) removed the "must sell" requirement on IOUs, and	in one area are lower than the surrounding areas. Requires continuation of regional market power mitigation, not a California-only solution.

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
		evidence that regional prices did not tend to exceed the ISO's price caps during this period.	other factors constraining supply met through the PX and ISO markets at this time), forced the ISO to procure significant quantities of energy out-of-market at prices in excess of the $250 price cap in order to meet ISO system load.	starting in January 2001 the IOUs stopped selling power to PX, ending the possibility of any utility-owned generation being exported.	
3. Relieving Congestion with "Non-firm Export" (B.2)	Scheduling of "non-firm export" that supplier does not intend to deliver or cannot deliver. If importing inter-tie is congested, the supplier receives the congestion revenue, and then cancels the export after the close of the Hour-Ahead	ISO detected this practice in July 2000.	ISO acted by banning this activity in a market notice of July 21, 2000 and notified market that DMA will be investigating any	Adds to probability of real time congestion, and may impose detrimental impact system cost and reliability if real	Continues to be prohibited by ISO. The ISO is considering a Tariff amendment that would allow rescinding of counterflow

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
	market, so no delivery takes place. Provides false relief of congestion prior to real time, and does not actually relieve congestion in real time since export does not occur. This general gaming strategy could also be employed by submitting firm energy or wheeling schedules that create counterflows to collect congestion revenues in the Day Ahead or Hour Ahead market, and then cutting these schedules in real time.		Market Participant found to be engaging in this activity and would be subject of corrective actions.	time congestion occurs. The practice of cutting non-firm schedules was detected and stopped after it occurred during 9 hours in July 2000, accounting for only approximately $54,000 in congestion relief payments. The ISO has also reviewed of all import/export schedules (non-firm, firm and wheeling) that were cut prior to real time after congestion revenues were	congestion relief payments for schedules that are cancelled prior to real-time

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
				earned in the Day Ahead or Hour Ahead market during the 2000-2001 period. Results of this indicate that total congestion payments for these import/export schedules were only $1.1 million.	

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
4.“Death Star” (B.2(sic))	Circular schedule, part of which is outside the ISO Controlled Grid, that is not backed by any physical resource. Export schedule creates a counterflow on a congested path for which the Schedule Coordinator may earn congestion revenues. Counterflows on AC transmission paths with no phase shifter control would not provide congestion relief in real time if not backed by actual (physical) supply resources and load in different control areas outside of the ISO system.	Analysis indicates that Enron earned a total of $2.7 million in congestion revenues during 1998-2002 from import/export schedules that may have been “circular” and not resulted in any energy flow to relieve congestion in real time. About $2.3 million of these congestion revenues could be from the specific scenario described as “Death Star” in the Enron memos.	In March 2000, ISO proposed a new rate design to encourage the inclusion of other transmission lines in California in the ISO system, which would reduce opportunities to employ this strategy. As noted in the Enron memos, the ISO does not have sufficient information to verify the actual (physical) source and sink of import/export schedules, which is necessary to	If import/export schedules on AC transmission lines are “circular” and are not backed by physical supply resource and physical load in two different control areas outside of the ISO system, these can impose detrimental impact to system reliability if real time congestion occurs.	Market Rules may be modified to explicitly require that all schedules be backed by physical resources and feasible schedules (and be in different control areas for wheel through schedules). Also, market rules may be modified to require enhanced reporting requirements for imports/exports tying schedules to specific resources in other control areas. Requires coordinated monitoring on regional basis by all control areas.

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
		The quantity of the potential "circular flows" scheduled by Enron during any individual hour was typically limited to 10 MW. Analysis of other schedules indicates that up to $13.6 million of congestion revenues over 1998-2002 period could be associated with "circular schedules" by other SCs.	determine whether import/export schedules are "circular" and would not result in any flow of energy that would actually relieve congestion in real time. Also, additional circular schedules could be "disguised" if export/import schedules were submitted under two different Participant IDs (combined with a separate bi-lateral transaction between the two		

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
			SCs). ISO is collaborating with FERC and other legal entities investigating "Death Star" described in Enron memo.		

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
5. "Load Shift" (B.3)	Requires that Enron have FTRs connecting ISO zones (i.e. Path 26). First, FTR owner creates congestion (when it would not otherwise exist) by false scheduling of load in different zones. FTR owner may then relieve the congestion by decreasing flow on path by eliminating or reducing false load through adjustment bids (which may also help set the congestion charge applied to remaining flow on line) The FTR owner can then collect additional congestion revenues for FTRs it does not use to schedule its own load/generation. The discussion of oversheduling of load in the	The general gaming scenario of driving up congestion charges by scheduling of false load or generation was identified by ISO in the context of designing the initial auction of FTRs.	The ISO monitors scheduling activity of FTR owners, and performed analysis of unusually high congestion Path on Path 26. ISO's DMA had also requested position limits to limit FTR ownership by single entities (and affiliates), but ISO Board did not approve these. ISO DMA has enhanced the FTR monitoring system to track	Enron earned \$34 million in congestion revenues on Path 26 in the year 2000, but only \$165,000 of these revenues occurred in hours when Enron could have caused congestion through its load scheduling practices. Additional analysis of the impact of a more general strategy of "oversheduling load" in SP15 indicates that "oversheduling	Continued monitoring of FTR market critical. Enron memo illustrates prudence of imposing position limits and other scheduling limitations on entities purchasing FTRs.

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
	Enron memos does not mention how such a strategy could also be used to increase FTR revenues. However, in addition to seeking to "create congestion" by scheduling false load, the FTR owner may also seek to increase congestion revenues through a more general strategy of "overscheduling load" in order to reduce the "supply" of available transmission capacity remaining on the line. This can drive up the congestion charge by requiring that additional flow on the load be curtailed.		FTR revenues potentially attributable to overscheduling to cause or exacerbate congestion as well as schedule adjustments to relieve congestion	of load" by Enron could account for only about $1.3 to $3.1 million of the $34 in congestion revenues earned by Enron for FTRs on Path 26.	

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
6.“GetShort y” (B.4)	Rather than purchasing all projected Ancillary Service (A/S) capacity requirements in the DA market, the ISO defers a portion of A/S purchases to the HA market. This helps minimize overall A/S purchase costs, by lowering the MCP in the DA market (due to reduced demand), and taking advantage of some additional lower cost supplies of A/S that are often available in the HA market. To encourage economic trades between suppliers, the ISO also allows sellers to have the ISO “buy back” A/S capacity they sold in the DA market from other suppliers in the HA market. If A/S prices are	The problem of the sale of A/S capacity that is not actually available has been a concern since market opened, and has been the subject of increasing levels of monitoring and penalties by the ISO Compliance Unit.	ISO Compliance Unit has monitored logs and eliminated payments for unavailable A/S since June 1999. The ISO March 2002 Tariff filing included a provision requiring that participants “buying back” A/S in the Hour Ahead market pay the higher of the Day ahead and Hour ahead market clearing prices. This eliminates the financial incentive to “sell short” in the Day	The ISO’s overall strategy of deferring some A/S purchases from DA to HA market reduces overall A/S costs for consumers, since HA prices are frequently lower. However, selling of A/S capacity that is not actually available imposes potential risk to system reliability. Enron made $5 million by “selling high” in	Prevention of this strategy requires monitoring on regional basis by all control areas. Market Rules can be modified to require that all A/S schedules be backed by identified resources, and require enhanced reporting requirements for imports tying schedules to specific resources in other control areas.

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
	systematically lower in the HA Market, then Sellers may seek to "sell short" in the DA market, by selling A/S capacity in the DA market, then buying back this capacity in the HA market. The first Enron memo indicates that Enron used this market feature to play a "paper trading" game where it sold A/S capacity that was not actually available, planning to buy this capacity obligation back in the HA market at a lower price.		Ahead A/S markets.	DA and "buying back" low in HA market (out of total A/S sales of $20 million) The degree to which Enron sold A/S capacity that was not actually available (but was not called upon to provide energy) is very difficult to determine after-the fact since, since A/S sales by Enron were from imports.	
7."Wheel Out" (B.5)	When available capacity on an intertie is set to zero (downed line), Enron schedules a flow through the line using the PX as its Schedule Co-ordinator (SC).	The ISO is aware of this problem, which first occurred in the PX market in 1999, causing	The PX monitoring unit reported this game to FERC	The practice of seeking to collect congestion revenues for counterflows for	Currently, participants can defend against this possible gaming

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
	The traders know that the schedule will be cut due to the downed line, and may earn a congestion counterflow payment without having to actually send energy through the intertie (if other entity scheduling through the PX schedules energy in the opposite direction)	problems between entities using the PX as their SC.	in 1999. Following this initial incident, the ISO proposed modifying congestion management software to cancel out schedules on downed lines. However, the PX objected to this modification due to other complications this software modification would create.	schedules on a downed line has done little harm to the market. On one occasion involving the Silver Peak line, Enron took advantage of other entities using the PX as their SC. On one other occasion in Spring 2000, \$3.5 million in congestion charges (including \$220,000 by Enron) were received by a several participants (non-UDCs)	strategy by eliminating any schedules on a downed line. Other options include (1) modifying the ISO congestion management software to cancel out schedules on downed lines, and (2) implementing a settlement rule that would provide for non-payment of Day Ahead/Hour Ahead congestion charges/payments when schedules were cut in real time.

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
				using the PX as their Schedule Co-ordinator for counterflows scheduled on a line (El Dorado) that was out of service for several hours due to fire.	

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
8.“Ricochet ” (B.7)	Buying low from the PX Day Ahead market and sell back high in real time. NOTE: The Enron memo did not discuss use of “ricochet” schedules as a way of “MW-laundering”, or trying to circumvent the ISO’s hard price caps in effect until December 2000 or to circumvent cost-justification/refund obligations under the “soft caps” in effect starting in December 2000. However, “ricochet” schedules also represent one of the key mechanisms that could be used in trading strategies designed to “launder” MWs generated in California into imports in order to circumvent price mitigation rules in effect in the ISO system.	The ISO was very much aware and concerned about this problem based on monitoring of scheduled exports, subsequent imports in real time, and prices paid for imports purchased out-of-market. ISO invoked its authority under both Amendment 33 and its MMIP to require all sellers to justify costs for all sales above the “soft caps” in effect from Dec. 2000-	The ISO’s concern about high prices being demanded by imports (despite no actual shortages of reserves or load shedding being reported by other control areas) was identified to FERC in Summer 2000. Since October 2000, the ISO had been requesting west-wide mitigation measures that effectively addressed potential “MW laundering,” which FERC	Exacerbated the impact of overall market power on system reliability and costs to consumers. Ricochet scheduling allowed sellers to exercise market power and take advantage of tight supply/demand conditions by effectively withhold power from the Day Ahead market and demanding high prices in real time. Helped defeat	This is always a concern when spot market supply is tight and price caps in one area are lower than the surrounding areas. Requires regional market power mitigation, not a California only solution.

		June 2001. For imports, cost justification requirements specified by the ISO included the source of any power sold as an import. When virtually all suppliers failed to submit any cost justification to the ISO, FERC declined to compel suppliers to provide this information to the ISO.	ultimately approved in the June 19, 2001 Order. As previously noted, the ISO's efforts to require suppliers to submit cost justification for imports provided at prices over the $250/$150 soft caps under Amendment 33 and the ISO's MMIP was not supported by FERC.	the effectiveness of price caps in the absence of region-wide market power mitigation. Financial impact on consumers will ultimately depend on level of refunds ordered by FERC for sales of imports to buyers in ISO system (including CERS) during May 2000-2001.	

Trading/ Gaming Strategy	Summary	ISO Detection/ Investigation	ISO Action	Impact on Market	Current Conditions/ Potential Future Actions
9. Selling Non-firm Energy as Firm Energy	This is a type of transaction involves falsely representing the terms of supply. Firm energy export (into CA for example) must be certified by exporting control area.	Since importing control area must certify the "firm" status of the import, detection should occur at that end of transaction. ISO operators typically are not aware of specific instances where this strategy has been employed.	ISO would complain and report to WSCC if it is aware of any incidence of this	Causes disconnection between control areas and add cost to system operation and reduce system reliability	Not allowed under current WSCC rules. Requires monitoring on regional basis by all control areas.
10. Scheduling Energy to Collect the Congestion Charge II (B.9)	This again involves the submission of a schedule that appears to relieve congestion based on the congestion management model used in the Day Ahead and Hour Ahead markets, but will not actually be delivered in real time.	ISO is aware of the potential game.	ISO investigated the game, found it could rarely be profitable, and continued to monitor the actual incidence of congestion prices that exceeded real time energy	Submission of "phantom schedules" increases chance of congestion in real time. However, this gaming strategy was rarely profitable.	This gaming opportunity should be effectively eliminated in the new congestion management model. An additional and interim safeguard is to amend the ISO Tariff to allow the

	Since the incremental energy price that an SC submitting a "phantom schedule" will pay in real time for undelivered energy can (very rarely) be lower than the congestion credit, this gaming scenario can only be profitable when the usage charge is more than the price cap.		prices. Amendment 33 (December 8, 2001) also reduced this gaming opportunity by imposing a significant additional charge on uninstructed deviations. Under Amendment 33, negative uninstructed deviations are charged the real time energy MCP <u>plus</u> charge for out-of-market (OOM) costs incurred by ISO.	Congestion charges exceeded real time energy price on import ties only about 50 times from 1998-2002.	ISO to decline to make congestion payments to entities that fail to deliver the associated energy.